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## ► How Socially Selective is the Vocational Education System in Austria? New Insights from Analysing Register Data

The recent opening of register data strongly increases opportunities for (educational) research in Austria. This article presents the general data-framework and introduces a concrete register-based longitudinal data set on educational and occupational trajectories for a complete cohort of school entrants. Following this, a practical application of analysing this data is discussed. Analyses will focus on the research question of how socially selective educational trajectories in upper secondary education are. To serve this topic, the social structure of various forms of vocational education as well as academic secondary school according to gender, migration background and parents' education are compared. In addition, the question of how social structure develops by comparing population upon entry, upon dropping out, and upon graduation is discussed. This allows us to answer the question whether the widely known social selectivity of school-choice is enforced during its attendance and how this is shaped by sociodemographic characteristics. Empirical results lead to conclusions on counteracting policy measures that are needed.

### 1 General introduction to register-based research and to a specific data set on educational and occupational careers

Since 2022, changes in law made it possible to widely access administrative microdata for research purposes in Austria.<sup>1</sup> The number of accessible registers and microdata sets is constantly increasing and currently comprises 143 data sets, all of which can be linked at the individual and/or institutional level using unique identifiers (e.g. the bPK – sector-specific personal identification number). Data protection is ensured through encryption by the independent “Master-Data-Register-Authority” (Stammzahlenregisterbehörde), which is the only institution with access to information on the identity of individuals. These data are made available via remote access by Statistics Austria upon request using the “AMDC-Austrian Micro-Data-Center”<sup>2</sup>.

In this article, I use a register data set covering the school entry cohort of 2006/2007 with 83,465 individuals to analyse the research question of social selectivity at entry to

1 DeepL was used for an initial translation of the manuscript and further revising (August 2025).

2 URL: <https://www.statistik.at/en/services/tools/services/center-for-science/austrian-micro-data-center-amdc> (Retrieved on 29.05.2025).

upper secondary education as well as its development throughout the different forms of education. The variables in this AMDC-data-set provided by Statistics Austria are widely dispersed and originate from a wide variety of registers, among them school- as well as higher education statistics, the (highest) education register, labour market statistics, the population register and many others. Concerning content, the data set includes information on individuals (gender, migration background) and their origins (e.g. parents' education, employment, labour market status, and income) as well as information on educational and professional careers (career information covering 16 years on types of schools attended, labour market status, and employment characteristics). In addition, the data set contains information on social structure of the educational institutions attended (proportion of parents with certain educational levels and labour market status as well as migration background).

The subgroups considered in this article comprise beginners in certain forms of education, dropouts from it and graduates. To operationalise the beginners, all those who started a type of school in their ninth or tenth school year (in the case of apprenticeships, the 10<sup>th</sup> or 11<sup>th</sup> school year) were selected. Graduates are defined as those whose highest educational status equals this type of school or even higher. Those people starting a form of education but not reaching a degree on this level are considered dropouts. Analyses cover subgroups of the cohort in apprenticeship (dual training), School for Intermediate Vocational Education (BMS/Berufsbildende mittlere Schulen), College for Higher Vocational Education (BHS/Berufsbildende Höhere Schulen) and Academic Secondary School (AHS or Gymnasium/Allgemeinbildende Höhere Schulen). Analyses of social structure will focus on the share of females, students with migration background, students with parents having a low and high level of education.

## 2 Social differences in educational trajectories through upper secondary school types

The analytical section of the register data presented before is devoted to the research question how socially selective entry into and progression through upper secondary education is in comparison of different forms, respectively types of general and vocational education. Register data allows us to analyse this question in a longitudinal perspective instead of a only cross-sectional one (see STEINER 2023). Social selectivity refers to differences in gender, migration background and parental education (parents with low and high level of education). In a first analytical step, the social structure of beginners in the different educational forms considered is compared to the social structure of the entire cohort. This shows selectivity at the entrance-level. In a second step, the social structure of beginners will be compared to the social composition of dropouts and graduates. This makes it possible to answer the question of whether the social selectivity of entering different school types at upper secondary level is complemented by comparable socially unequal dropout- and graduation-selectivity, either reducing or even increasing selectivity at large. Comparing different forms of vocational and general education will also show whether selectivity

varies and develops differently according to trajectories and concerning socio-demographic characteristics.

Based on sociological theory, major social differences are to be expected here. BOUDON (1974), for example, points out that primary and secondary background effects contribute to social inequality. Primary background effects result in differences in competence and performance between children with different resource-levels during the socialisation process. Children from educationally disadvantaged families often do not receive parental support in learning, which is reflected in lower average competence levels and vice versa. The secondary background effect causes disadvantaged children more likely to not choose (higher) school types even if they have sufficient or above-average competence levels. This is because in a cost-benefit-analysis, they systematically overestimate the costs and systematically underestimate the benefits of (different forms of) education. In addition, opportunity costs also vary significantly according to social background. Quite simply, longer education (instead of contributing to family income) must also be affordable. BOURDIEU/PASSERON (1971), on the other hand, cite cultural capital as a decisive resource for the course of educational careers. Depending on their social background, students have different levels and forms of cultural capital, which is rewarded to varying degrees in the education system or can even become a disadvantage. In order to reproduce existing structures and hierarchies, the cultural capital of (educational) elites is assumed and rewarded in the education system, while that of disadvantaged groups is filtered out. This is why Bourdieu and Passeron conclude that equal opportunities remain an illusion. Both theoretical approaches suggest that the choice of educational forms and pathways as well as the (successful) completion of them are highly unequally distributed across social groups.

Looking at the analysis results in Table 1, the assumptions on social inequality are confirmed: women, who make up 48.7 percent of the entire cohort, are significantly underrepresented (33.8 percent) among the beginners of an apprenticeship but are overrepresented in all other types of vocational schools. In AHS, they even reach a share of 57.5 percent, which is 8.8 percentage-points above their share in the entire cohort. Young people with a migrant background are slightly underrepresented when entering the dual system and BHS, but not in BMS or in AHS.

Table 1: Proportions of socioeconomic sub-groups in cohorts and stages of training (in %)

|           | Group                         | Cohort | Apprenticeship | BMS  | BHS  | AHS  |
|-----------|-------------------------------|--------|----------------|------|------|------|
| Beginners | Female                        | 48.7   | 33.8           | 52.6 | 51.6 | 57.5 |
|           | With a migrant background     | 34.0   | 29.1           | 34.0 | 29.7 | 33.2 |
|           | Parents with low education    | 9.6    | 11.6           | 11.1 | 6.0  | 4.4  |
|           | Parents with higher education | 38.8   | 16.0           | 20.0 | 43.1 | 67.3 |
| Dropouts  | Female                        | 48.7   | 27.6           | 43.0 | 42.8 | 47.1 |
|           | With a migrant background     | 34.0   | 46.6           | 58.2 | 39.8 | 43.5 |
|           | Parents with low education    | 9.6    | 21.8           | 21.6 | 9.9  | 8.1  |
|           | Parents with high education   | 38.8   | 14.3           | 21.1 | 32.4 | 47.1 |
| Graduates | Female                        | 48.7   | 34.9           | 54.1 | 55.3 | 59.6 |
|           | With a migrant background     | 34.0   | 25.9           | 30.1 | 25.5 | 31.2 |
|           | Parents with low schooling    | 9.6    | 9.8            | 9.4  | 4.4  | 3.6  |
|           | Parents with high education   | 38.8   | 16.3           | 19.8 | 47.5 | 71.2 |

*Note: BMS/Berufsbildende mittlere Schulen: Schools for Intermediate Vocational Education; BHS/Berufsbildende Höhere Schulen: Colleges for Higher Vocational Education/Academic Secondary School; AHS or Gymnasium/Allgemeinbildende Höhere Schulen: Academic Secondary School*

*Source: Own representation based on STATISTICS AUSTRIA/AMDC-register-data, N=83,465*

The clearest picture of social inequality emerges according to parental education. If parents have at most a compulsory school-leaving certificate, which equals low degree of education, their children are overrepresented when entering apprenticeships and BMS. This – at a first glance – can be interpreted as a starting point for curbing inheritance of low educational attainment. However, the persistent social selectivity is evident by looking at the significantly below-average proportions of students with poorly educated parents entering higher secondary education (BHS, AHS). Only 4.4 percent of AHS-entrants originate from lowly educated households, while their share of the cohort is 9.6 percent. This means that disadvantaged students are underrepresented by more than half. If the parents have a higher level of education (a high school diploma or even higher), the picture reverses. These young people are clearly underrepresented in apprenticeships and BMS (the lower forms

of education) by more than half, while they are almost overrepresented twice in general academic schools.

So, upon entry into upper secondary education, students' social structure varies heavily when comparing different educational forms. The second part of the analysis now examines social selectivity across the different educational pathways chosen (apprenticeship, BMS, BHS, AHS). Social selectivity is assessed by comparing the proportions of specific subgroups – females, individuals with a migration background, and learners with low- or high-educated parents – among entrants, dropouts, and graduates.

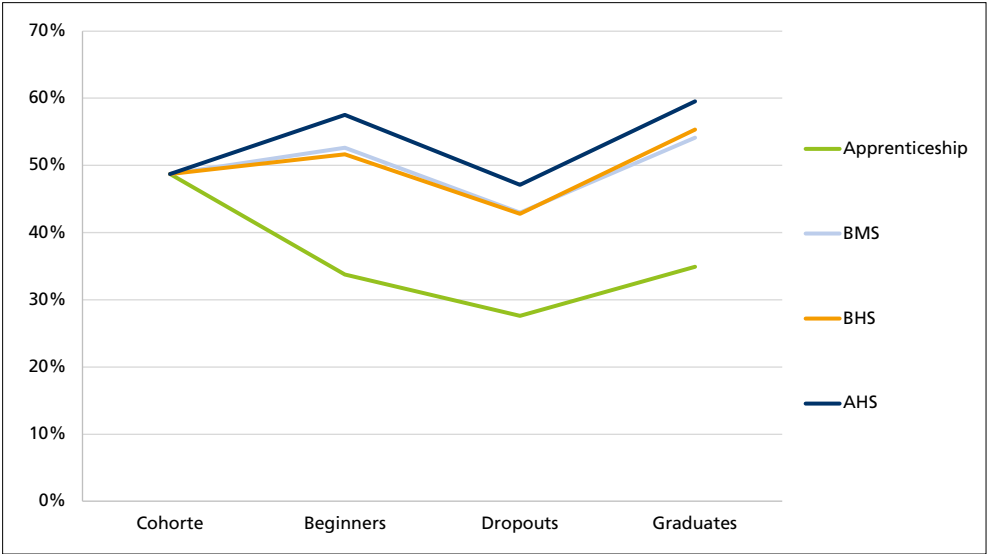
This will allow us to conclude if socially selective dynamics decrease or even increase over the course of training.

When broken down by gender, all forms of training show a lower dropout rate among women, which, in turn, causes, compared to the initial proportions among beginners, the proportion of women among graduates to rise. For example, the already high proportion of women in grammar schools rises from 57.6 percent at the start to 59.6 percent among graduates due to their low share among dropouts. On the other hand, concerning migration background, a previous analysis showed comparatively low entry-selectivity in some forms of education and training. However, a significantly above-average dropout rate leads to the fact that selectivity based on migration background is more pronounced among graduates. For example, the proportion of students with migration background among BMS entrants corresponds exactly to their share in the cohort of 34 percent but falls to 30.1 percent among graduates due to a high dropout-rate among this group. In the same course, their proportion of 29.4 percent among BHS beginners, which is already almost 5 percentage-points lower than in the overall cohort, falls to 25.5 percent among graduates.

However, the highest selectivity is evident in relation to the educational level of parents. If parents' education is low, which applies to around ten percent of the cohort, this is associated with noticeably lower entry rates into higher forms of education in upper secondary education. An above-average dropout rate subsequently leads to a further significant reduction in these already low shares. Among BHS graduates, their share is only 4.4 percent, and among AHS graduates, it is even lower at 3.6 percent, resulting in an underrepresentation of almost two-thirds. The situation is "similar" for students with highly educated parents, but with the opposite sign. A lower dropout rate in higher school types rises e. g. their share among AHS graduates to 71.2 percent – almost double their share in the overall cohort.

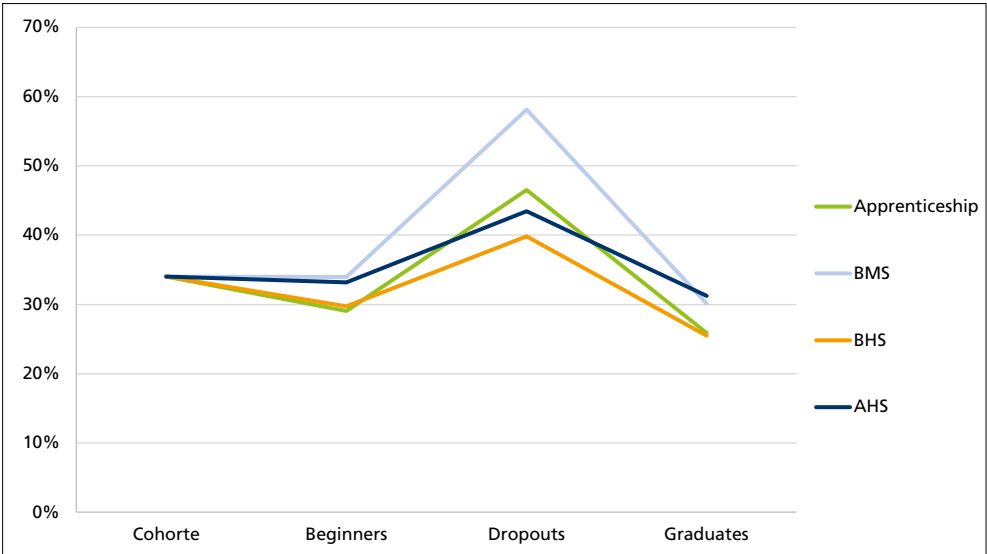
The following figures visualise the respective results:

Figure 1: Selectivity of Upper Secondary Education by Gender in Austria (share of females in %)



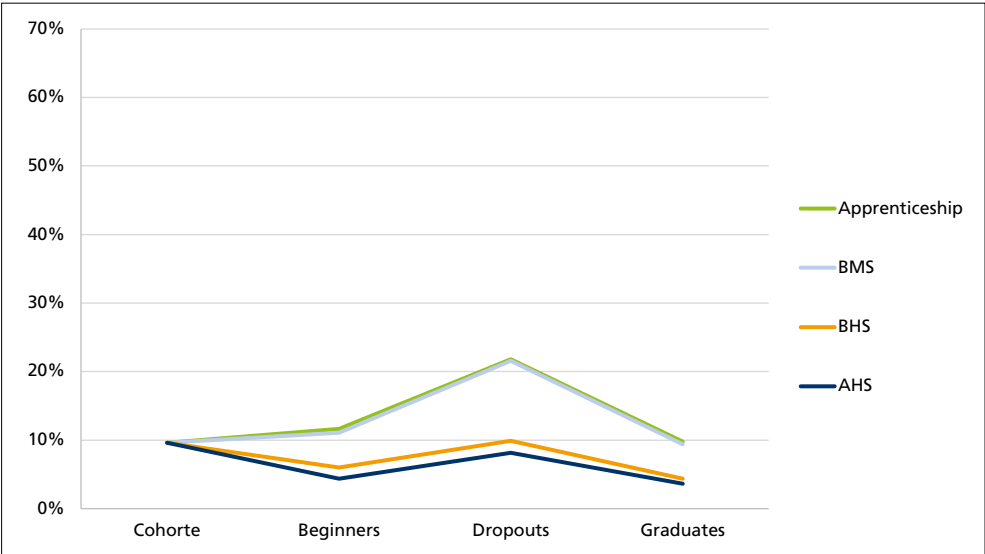
Source: Own representation based on STATISTICS AUSTRIA/AMDC-register-data, N=83,465

Figure 2: Selectivity of Upper Secondary Education by Pupils with Migration-Background in Austria (in %)



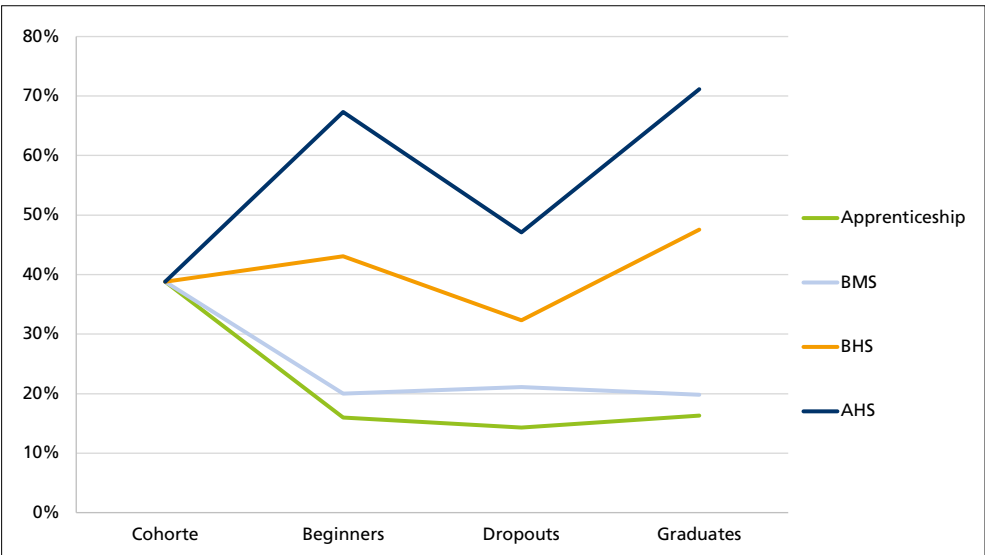
Source: Own representation based on STATISTICS AUSTRIA/AMDC-register-data, N=83,465

Figure 3: Selectivity of Upper Secondary Education by Parents with low level of Education in Austria (in %)



Source: Own representation based on STATISTICS AUSTRIA/AMDC-register-data, N=83,465

Figure 4: Selectivity of Upper Secondary Education by Parents with high level of Education in Austria (in %)



Source: Own representation based on STATISTICS AUSTRIA/AMDC-register-data, N=83,465

### 3 Conclusions

According to the results presented, social selectivity is high when entering different forms of upper secondary education but is even more pronounced among graduates due to socially unequal dropout rates. When comparing school types, selectivity is once again stronger in the traditionally upper-class Gymnasium than in all vocational education and training programmes. But there are also different trends within vocational forms of education. While the apprenticeship-system and BMS contribute to a certain degree to social equality, at least at the point of entry, social selection in BHS is somewhat lower but overall comparable to those in AHS.

These empirical findings form the basis for policy strategies necessary to counteract social selectivity.

Educational policy should aim at breaking reinforcing dynamics of disadvantage. Thus, social selectivity leads to a concentration of disadvantages in certain school types and locations. Corresponding peer effects undermine aspirations and motivation, leading to an accumulation of disadvantage (see MACLEOD 1987). On the other hand, latest findings on the influence of social-school-composition on educational trajectories clearly show that disadvantaged students benefit particularly strongly from a more favourable school environment (see REITER/STEINER 2024). Since counteracting the concentration of disadvantage and promoting greater social mixing has beneficial consequences, it should form a pillar of educational policy.

Investing in early childhood education and expanding all-day school programmes can counteract early differences in performance and competence based on social background. Particularly in the Austrian context, where school entry is characterised by a deficit-concept of testing school readiness (see STEINER 2025) and where half-day schooling especially in primary education is widespread, there is considerable room for improvement.

Finally, based on these findings, it is advisable to promote support programmes that specifically address disadvantaged schools and students. Starting points for this policy have been implemented in Austria as well as in Germany. In the German “Startchancen-Programme”, 4,000 schools with a disadvantaged pupil population, representing around ten percent of all schools, receive around € 20 billion in additional funding. Similar Austrian programmes like the former “100 Schools, 1,000 Opportunities” initiative or the programme “Chancenbonus” starting in 2026 appear modest in comparison and should be expanded significantly to reach at least the corresponding size of the German programme.

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